SI 507

Final Project Proposal

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1. Project Goal

Implement an application which will offer users the function to register themselves, login, store and share data with other users and draw the graph of the data.

2. Tools

Python, Flask, matplotlib, tkinter, SQLAlchemy

3. Interface description

1.Route 1: /welcome

This page will show the welcome interface and some guide for use

2.Route 2: /register

This page will show the register interface for new users, which require you set up username and password

3.Route 3: /login

This page will show the login interface which needs your username and password. After the login, the interface will alter you that you are login successfully or failed to login.

4.Route 4: /draw_graph/<local_path>/<file_name>

This page will get the data from the local path and file name you offered and draw the graph.

5.Route 5: /draw_graph/<database>/<id>

This page will get the data from the application’ s database by id you enter.

6.Route 6: /save/ <local_path>/<file_name> This page will save the files you offered

7.Route 7: /save/ <local_path>/<file_name>

This page will save the files you offered to the application’ s database

4. Requirement

I will meet at least following requirements mentioned in *SI 507 W19 Final Project Assignment.pdf*

1. Use of a module we did not use for an assignment or in-class exercise in the course of the SI 507 semester that does something new and allows YOU to learn and explore something new.
2. Use of a new module we did not use for an assignment or in-class exercise in the course of the SI 507 semester that does something new and allows YOU to learn and explore something new. (See above)
3. Object definitions using inheritance.
4. A many-to-many relationship in the database structure that is relied upon during interaction with the Flask application.
5. At least one form in the Flask application that allows a user to interact with the form and send data from one place to another AND/OR save new data in the database AND/OR show data processed in some way for a user to see.
6. Inclusion of JavaScript files in the application that affect a view in your Flask application in some way.

5. Schedule

Milestone 1: 2019/4/10—2019/4/12

1.Make sure all the functions I need to keep the main python file run. Issue

2.Check the database relationship to make sure the relationship can respond the difference among the different data.

3.Confirm all the classes and the relationship between the different classes

Milestone 2: 2019/4/13—4/15

1.Learn knowledge and write some code to make sure the understand of matplotlib and tkinter.

2. Begin to design the user interface of the project

3.Begin to write the main python function.

Milestone 3: 2019/4/16—2019/4/17

1.Finish main part of the project

2.Parpare for the Check-in assignment

Milestone 4: 2019/4/18—2019/4/24

1: Finish all part of the project

2: Write the test file for the project

3: Submit the project

6. Difficulties/Issues

1.How to design the UI.

2.How to design the user register system.

3.In login interface, how to show user whether they login successfully or fails.

4.When users choose the file from local path, how to read data from the file.

5.How to draw the graph from the data.

6.How to save the data file to my database.

7.How to decorate my user interface.

8.What kind of test file this project need.

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Overall

My project will build the application which can help users to draw the online graphs by using the data from our database or the local files. There will be serval routes for this application. For example, in one of the route, you can register to be the member of the application. For another route, you will login by your username and password. In other routes ,you can choose the data not only from our database but also your local files to draw picture. **The project will allow users to** register and login, use the data whatever application offers or their local files to draw the graphs, share the data with other users.

I want to focus on the information visualizing from the dataset and human-computer interaction, collect data from users and share it.

Interface description

- Route 1: /welcome →
  This page will show the welcome interface and some guide for use

- Route 2: /register →
  This page will show the register interface for new users, which require you set up username and password

- Route 3: /login →
  This page will show the login interface which needs your username and password. After the login, the interface will alter you that you are login successfully or failed to login.

- Route 4: /draw_graph/<local_path>/<file_name> →
  This page will get the data from the local path and file name you offered and draw the graph.

- Route 5: /draw_graph/<database>/<id> →
  This page will get the data from the application's database by id you enter.

- Route 6: /save/ <local_path>/<file_name>→
  This page will save the files you offered

- Route 7: /save/ <local_path>/<file_name>→
  This page will save the files you offered to the application's database

Specifics

I will be relying on data from the database which I created when I do this project. And for more data, I will rely on the users to offer their special data for the local files.

An example of my data the application will be used is here: wind_speed.txt (https://github.com/zqcarlos/SI507_final_project/blob/master/wind_speed.txt)

I expect my database schema to include 3 tables. The entities each table will represent are: User entities, id,Username, Password ; Datafile entities, id, file_name, file_type; Graph entities, id, graph.

There will be a many to many relationship between User table and Datafile table

Different users can choose whatever datafile they like and one datafile will be used by different user. And for the Graph table and Datafile, they are one to one relationship.

I will be populating the database when I do this project. And for more data, saving data to the database when users choose the local files is the main way to get further data.

I am planning to use the following modules in writing my code, aside from Flask and SQLAlchemy or some equivalent:

> *- matplotlib - for charting*
> *- tkinter - for UI design*

I will be defining the following functions outside of Flask routes: get_file function: This funciton will be used to read the file in the local computer
draw funciton: This function will be used to draw the graph of the data which is chosen.

I will be defining the following classes outside of Flask routes/models: class FilterContainer
This class will mainly designed to work for getting data which many have some problem that can no be used directly.

The assignment(s) in 507 we've done that are most like what I want to do are: Project 2

Other useful resources for this project for me will be: https://matplotlib.org/

Other

My biggest concerns about my work on this project are how to write about the test file because we need first register for the membership and then login and for other test result.

I feel confident that I can complete all the part I designed above

Also, I believe the user interface I design will be user-friendly and concise.